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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,117	11/21/2003	Charles Edward Baumgartner	RD-27,719-6	1803
41838	7590	06/14/2005	EXAMINER	
GENERAL ELECTRIC COMPANY (PCPI)			GABOR, OTILIA	
C/O FLETCHER YODER			ART UNIT	
P. O. BOX 692289			PAPER NUMBER	
HOUSTON, TX 77269-2289			2878	

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/719,117

Applicant(s)

BAUMGARTNER ET AL.

Examiner

Otilia Gabor

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 April 0205.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 32-58,93 and 94 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 32-58,93 and 94 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

***Response to Amendment***

1. The amendment filed 04/29/2005 has been entered.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 32, 41-43, 47, 48, 94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kingsley et al. (U. S. Patent 5,179,284).

Kingsley discloses an X-ray detector assembly comprising:

- a detector substrate 15 with contact pads
- a detector matrix array 22 disposed on the detector substrate 15

- a scintillator material 30 disposed on the array 22
- an encapsulating coating 40 disposed on the scintillator material 30 and disposed on a first portion of the detector substrate (the portion on which the array and scintillator are disposed, see Figure)
- a reflective layer 52 disposed on the encapsulating coating 40
- a moisture resistant layer 54 disposed on the reflective layer 52 so as to terminate on the second portion (the portion where there is no array and scintillator material, and is adjacent to the reflector layer 52) of the detector substrate 15 (see Figure); where the moisture resistant layer 54 is positioned on the second portion of the detector substrate 15 to provide a humidity barrier (see Col.4, lines 36-63).

Kingsley discloses that the encapsulating coating 40 comprises at least one polymer comprising para-xylene, such as poly-para-xylene (see Col.3, lines 48-59).

Regarding claims 41, 42 Kingsley discloses that the reflective layer 52 is made of silver or gold and that its thickness is in the range of about 0.01 to 0.2 microns (see Col.4, lines 11-21).

Regarding claim 43 Kingsley discloses that the scintillator material comprises CsI and is disposed in a needle structure (i.e., individual crystals) (see Col.3, lines 15-38).

Regarding claims 47, 48, 94 Kingsley discloses that the reflective layer 52 can be formed of a plurality of layers (52a, 52b) where one of the layers comprises aluminum (52b which acts as a thin film mask on the reflective layer 52a) (see Col.4, lines 11-35, Figure).

Kingsley fails to specifically disclose that the encapsulating coating contacts the detector substrate (i.e., that it is disposed on the sides of the scintillation crystals). However, since Kingsley discloses that the encapsulating layer (40) is present to provide a smooth surface to which the moisture barrier (50) can adhere, and since Kingsley discloses that the moisture barrier layer is disposed AT LEAST over the top of the scintillator array (30), it follows that when a columnar scintillator array (30) is present and the moisture barrier layer (50) is also disposed on the sides of the scintillator crystals, then the encapsulating layer (40) which is present underneath the moisture barrier layer (50) will in fact be disposed not only on the top of the scintillating array (30) but also on the sides of the crystals, and therefore it will be contacting the detector substrate.

5. Claims 33-40, 45, 46, 49, 51, 93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kingsley and further in view of Kusuyama et al. (U. S. Patent 6,781,131) and Lee et al. (U. S. Patent 6,663,973).

Regarding claims 33-37 Kingsley discloses that the encapsulating coating 40 comprises a polymer, such as para-xylene, and thus he fails to disclose the claimed polymer. However, since he discloses that other polymers that have good adhering and moisture protecting properties can be used (see Col.3, lines 48-59), it would have been obvious to one having ordinary skill in the art to use the claimed polymer, since as disclosed by Lee et al., films made from polymers containing para-xylylene moieties (substituted or un-substituted) are known to have good adhering and moisture

protecting properties, and as disclosed by Kusuyama et al. these types of polymer films are used in protecting the scintillation panel in an X-ray detector system.

Regarding claims 38-40 Kusuyama discloses an encapsulating layer 26 that encapsulates the scintillator so that the top, sides and the space in between the scintillator 18 and the detector array on the substrate are covered by it. The encapsulating layer is formed of three layers: a first encapsulating coating tier 28 disposed on the scintillating material 18 and the detector substrate 40; an inner reflective tier 30 disposed on the first encapsulating coating; and a second encapsulating coating tier 32 disposed on the inner reflective tier 30. The first and second encapsulating coating tiers 28 and 32 are made of para-xylylene material and the reflective tier 30 is made of Silver (see Fig.2, Col.4, lines 67, Col.5, lines 1-33). Kusuyama discloses that the first encapsulating layer 28 has a thickness of 10 microns but can be made as thin as 0.2 microns; the second encapsulating layer 32 is about 10 microns; and the reflective layer is about 0.25 microns. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the encapsulating layer follow the three layer format of Kusuyama, since as disclosed by Kusuyama, the three layer format increases the physical protection of the scintillator from outside moisture, it prevents light generated in the scintillator from leaking to the outside, and it improves the sensitivity of the detector. Having the exact layer thickness as claimed would have been obvious to one having ordinary skill in the art since it has been held that where the general conditions of a claim are disclosed in the prior art,

discovering the optimum or workable ranges involves only routine skill in the art (*In re Aller*, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955)).

Regarding claims 45, 93 Kingsley discloses a protective layer 58, 60 disposed over the moisture resistant layer 54 and on a third portion of the detector substrate 15 (see Figure); a protective cover epoxy that is disposed between the protective cover 58 and the moisture resistant layer 54 and between the protective cover 58 and the third portion of the substrate 15 (see Figure and Col.4, lines 47-63).

Regarding claim 46 Kingsley fails to specifically disclose that the epoxy material comprises a thermoset material with curing temperature of less than 100 degrees Celsius, however, since Kingsley discloses that any epoxy material that fulfills its intended function can be used, it would have been obvious to one having ordinary skill in the art to use any available epoxy material, and thus one that has the claimed curing temperature, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice (*In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960)).

Regarding claims 49, 51 Kingsley fails to disclose an additional corrosion protection layer disposed on the moisture resistant layer where the protective cover 58 is disposed over the corrosion layer, however, it would have been obvious to add a corrosion layer between the protective cover and the moisture resistant layer in order to protect the moisture resistant layer from corroding in the case that there is moisture that the protective layer fails to protect against (i.e., if the protective layer is not 100 percent sealing against moisture). Additionally, since the goal of Kingsley is to have a moisture

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barrier system where the scintillator and the detector array is as protected from the outside moisture as possible, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include as many moisture protective layers in the form of corrosion layers or protective covers as possible in the system of Kingsley, since merely adding additional layers and/or rearranging them involves only routine skill in the art.

6. Claims 52-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kingsley, Kusuyama and Lee and further in view of Kwasnick et al. (U. S. Patent 5,132,539).

Kingsley discloses that the protective cover epoxy is positioned between the protective cover and the third portion of the detector so that the detector and scintillator is protected from moisture, and that it (obviously) adheres the protective layer 58 to the moisture protective layer 54 and the substrate 15 (see Figure), but he fails to disclose an extra planarized adhesive layer to contact the detector substrate. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a planarized adhesive layer, such as the layer 42 disclosed by Kwasnick et al., into the system of Kingsley, since using a planarizing adhesive layer in addition with the epoxy layer allows for a smooth and effective adhesion even when the surfaces that need to adhere to each other are uneven.



***Response to Arguments***

7. Applicant's arguments with respect to claim 32 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Otilia Gabor whose telephone number is 571-272-2435. The examiner can normally be reached on Monday, Thursday-Friday between 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Otilia Gabor  
Primary Examiner  
Art Unit 2878

A handwritten signature in black ink, appearing to read "Otilia Gabor", is positioned below the printed name and title.